

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/007948

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 F04B17/03 F16K31/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 F04B F16K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 276 003 A (CALIFORNIA INSTITUTE OF TECHNOLOGY) 30 June 1981 (1981-06-30) column 2, line 32 - column 3, line 68 figures 1,2	1,10-12, 15,33
Y	WO 01/65061 A (SHELL OIL COMPANY) 7 September 2001 (2001-09-07) abstract page 5, line 19 - page 6, line 4 page 11, line 31 - page 12, line 16 figures 3-5	1,10-12, 15,33,37
Y	WO 95/08860 A (EXLAR CORPORATION) 30 March 1995 (1995-03-30) abstract page 4, line 35 - page 5, line 20 page 15, line 11 - page 17, line 4 figures 9,10	1,10-12, 15,33,37
	----- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

24 November 2004

Date of mailing of the international search report

02/12/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Gnächtel, F

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/007948

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 433 649 A (ASKOLL S.P.A.) 26 June 1991 (1991-06-26) column 2, line 51 - column 4, line 46 figures 1,3,4	1-5
A	----- US 5 358 035 A (GRUDZINSKI RICHARD) 25 October 1994 (1994-10-25) abstract column 3, line 4 - column 4, line 3 figure 1 -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/007948

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4276003	A	30-06-1981	US 4145165 A	20-03-1979
WO 0165061	A	07-09-2001	AU 4341201 A	12-09-2001
			BR 0108895 A	29-06-2004
			CA 2401707 A1	07-09-2001
			EP 1259705 A1	27-11-2002
			NO 20024138 A	01-11-2002
			WO 0165061 A1	07-09-2001
			US 2003051881 A1	20-03-2003
			US 2004079524 A1	29-04-2004
			US 2004144530 A1	29-07-2004
			US 2002126021 A1	12-09-2002
			US 2002029883 A1	14-03-2002
			US 2003164240 A1	04-09-2003
			US 2002043369 A1	18-04-2002
			US 2002036085 A1	28-03-2002
			US 2002121366 A1	05-09-2002
			US 2002000316 A1	03-01-2002
			US 2001033164 A1	25-10-2001
WO 9508860	A	30-03-1995	US 5491372 A	13-02-1996
			US 5557154 A	17-09-1996
			AU 7832894 A	10-04-1995
			DE 69416818 D1	08-04-1999
			DE 69416818 T2	16-09-1999
			EP 0671070 A1	13-09-1995
			WO 9508860 A1	30-03-1995
EP 0433649	A	26-06-1991	IT 1238937 B	17-09-1993
			IT 1236619 B	19-03-1993
			EP 0433649 A1	26-06-1991
			US 5088902 A	18-02-1992
US 5358035	A	25-10-1994	FR 2695450 A1	11-03-1994
			CA 2105526 A1	08-03-1994
			GB 2270707 A , B	23-03-1994